

Log of Boring No. BRC-SB-04-A

BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Drilling Method: Mud Rotary
Drilling Equipment: GEFCO 15K (Rig No.136)
Drilling Contractor: Water Development Corporation
Driller: Juan Aguilar

Borehole Total Depth: 420 ft bgs
Borehole Diameter: 10 in
Boring Location: Location 4 (Well ID: MCF-04)
Depth to Water (ft. bgs): NA

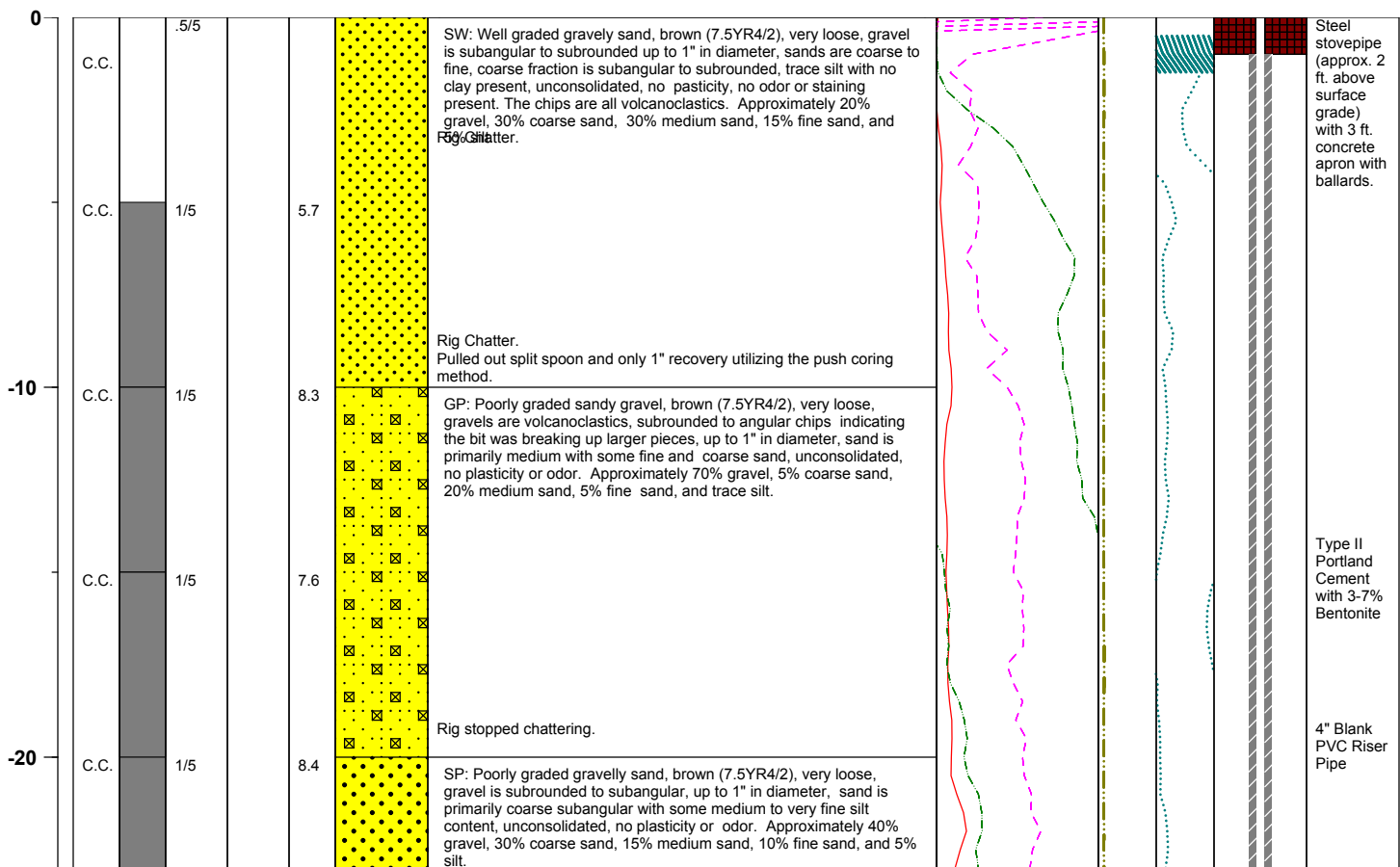
Sample Type: Continuous Core
Sample Interval: Varied

Logged By: Dave Kramer
Date Started: 2/05/04
Date Completed: 2/10/04

Monitoring Well Construction

Type of Surface Seal: Bentonite-Grout
Blank Casing Type/Size: 4" Sch 80 PVC
Screen Type/Size: 4" Sch 80 PVC
Transition Sand Type: 1C
Screen Slot Size: 0.010 in
Top of Screen (ft. bgs): -379 ft bgs
Bottom of Screen (ft. bgs): -399 ft bgs
Type of Sand Pack: # 10 x 20

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data			Well Construction	
								E-Log		Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)			



Project No. 3850360

Log of Boring: BRC-SB-04-A



Page 1 of 14

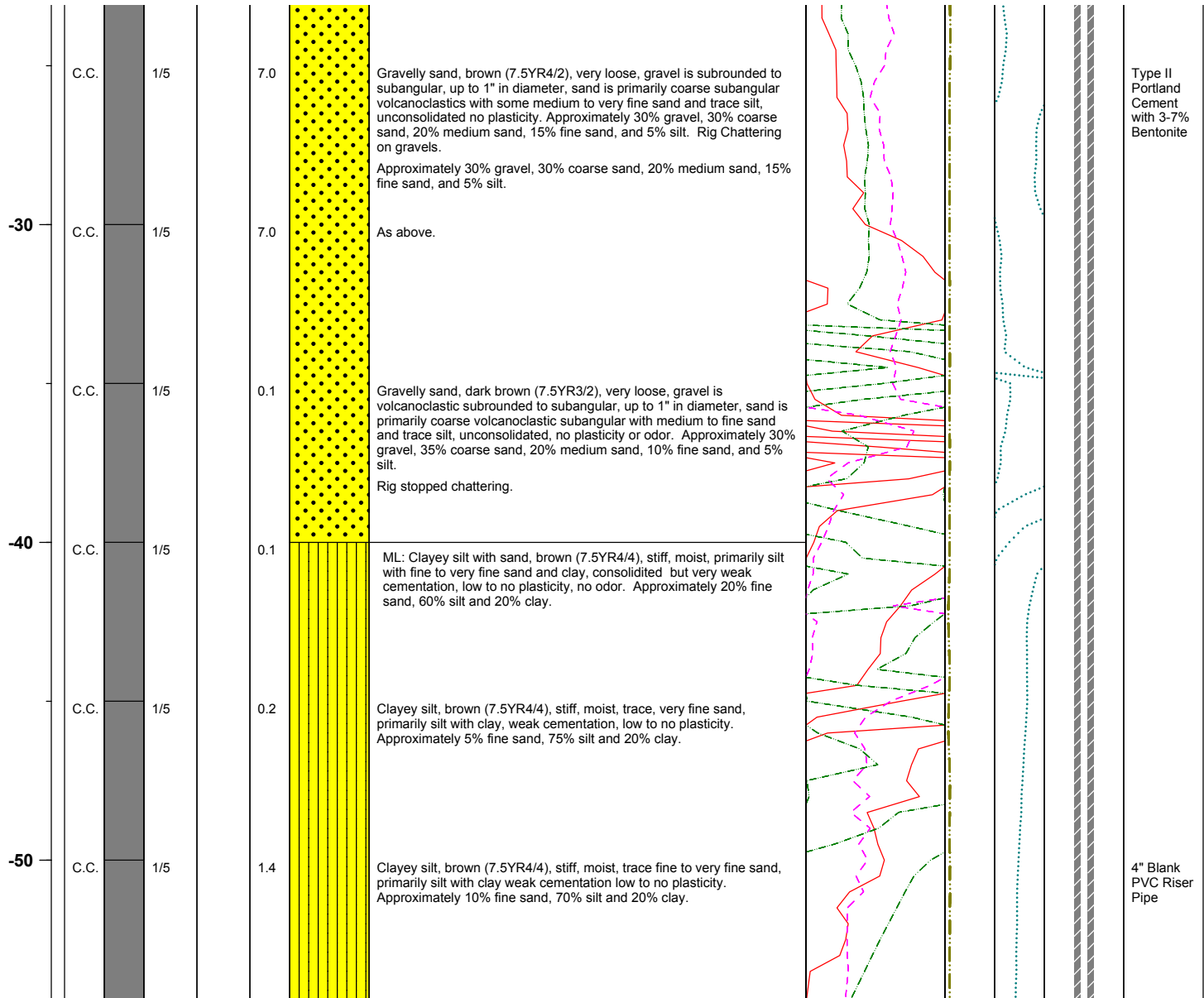
BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-04-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction
								E-Log			Caliper Log (inch)	
								16" (OHM)	64" (OHM)	S. PT. (OHM)		
								<div><div></div></div>	<div><div></div></div>	<div><div></div></div>		



Project No. 3850360

Log of Boring: BRC-SB-04-A



Page 2 of 14

BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-04-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data					Well Construction		
								E-Log			Caliper Log (inch)	Guard Log (OHM.M)			
								16" (OHM)	64" (OHM)	S. PT. (OHM)					
	C.C.	1/5			0.5		Clayey silt, brown (7.5YR4/4), very stiff, moist, trace very fine sand, primarily silt with clay, weak cementation, no plasticity. Approximately 5% fine sand, 75% silt and 20% clay.								
-60	C.C.	1/5			0.2		Clayey silt, brown (7.5YR4/4), very stiff, moist, weakly cemented, low plasticity. Approximately 80% silt and 20% clay.								
	C.C.	1/5			0.2		Clayey silt with sand, brown (7.5YR4/3), very stiff, moist, sand is fine to very fine, primarily silt with clay, no cementation, very low plasticity. Approximately 5% medium sand, 15% fine sand, 65% silt and 15% clay.								
-70	C.C.	1/5			0.2		Clayey sandy silt, brown (7.5YR4/3), stiff, moist, medium sand is subrounded metasedimentary, fine to very fine sand, primarily silt with clay, weak cementation, low to no plasticity. Approximately 5% medium sand, 25% fine sand, 55% silt and 15% clay.								
	C.C.	1/5			0.2		Sandy silt, brown (7.5YR4/3), stiff, moist, trace coarse sand subrounded to subangular, volcanoclastics, medium sand is subrounded, fine to very fine sand, primarily silt with trace clay, weak cementation, no plasticity. Approximately 5% coarse sand, 10% medium sand, 20% fine sand, 60% silt and 5% clay.								
-80	C.C.	1/5			0.9		Clayey silt with sand, brown (7.5YR4/3), very stiff, moist, trace medium sand in subrounded with some fine to very fine sand, primarily silt with clay, weak cementation, low plasticity. Approximately 5% medium sand, 15% fine sand, 60% silt and 20% clay.								
	C.C.	1/5			1.5		Approximately 5% medium sand, 15% fine sand, 60% silt and 20% clay.								
															Type II Portland Cement with 3-7% Bentonite
															4" Blank PVC Riser Pipe

Project No. 3850360

Log of Boring: BRC-SB-04-A



Page 3 of 14

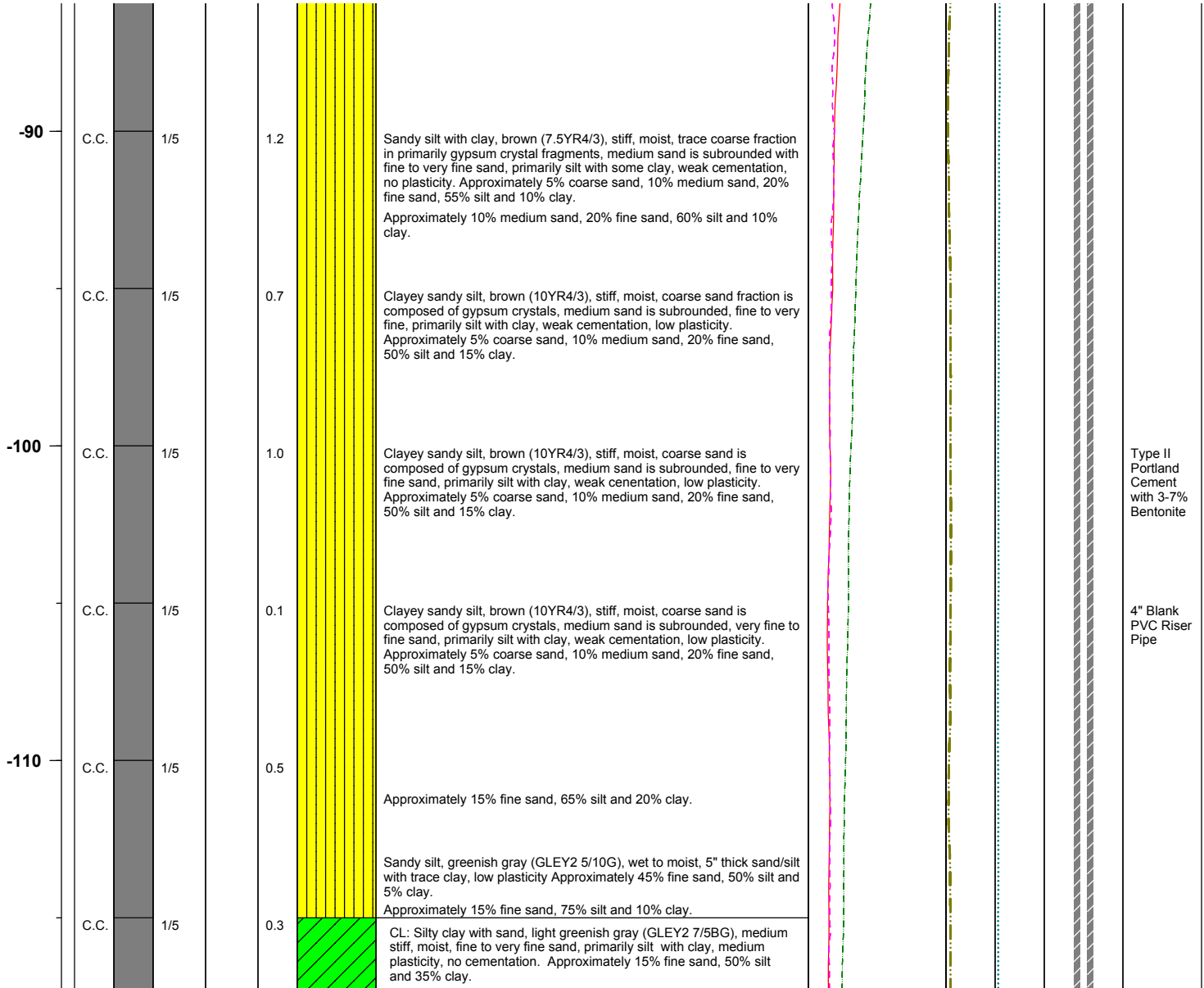
BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-04-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction	
								E-Log			Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)	S. PT. (OHM)			



Project No. 3850360

Log of Boring: BRC-SB-04-A



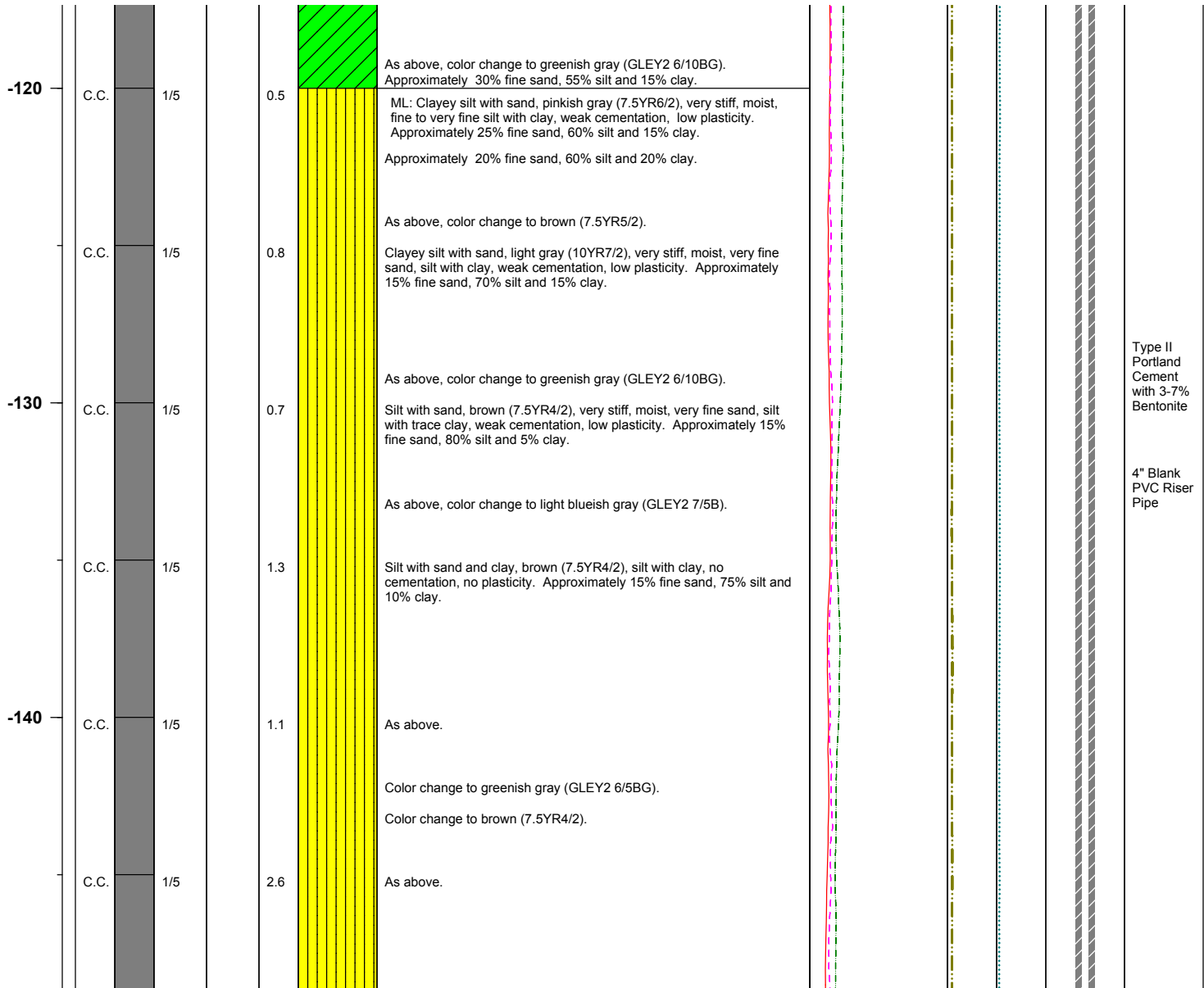
BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-04-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data			Well Construction	
								E-Log		Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)			



Project No. 3850360

Log of Boring: BRC-SB-04-A



Page 5 of 14

BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-04-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data					Well Construction
								E-Log			Caliper Log (inch)	Guard Log (OHM.M)	
								16" (OHM)	64" (OHM)	S. PT. (OHM)			
150	C.C.	1/5			3.3		As above.						Type II Portland Cement with 3-7% Bentonite
	C.C.	1/5			1.9		Silt with clay, brown (7.5YR4/2), very stiff, moist, very fine sand, silt with clay, no cementation, no plasticity. Approximately 10% fine sand, 80% silt and 10% clay. As above. Approximately 10% fine sand, 80% silt and 10% clay.						4" Blank PVC Riser Pipe
160	C.C.	1/5			1.1		As above.						
	C.C.	1/5			4.9		As above. Approximately 10% fine sand, 85% silt and 5% clay. As above, gypsum crystals present (1/2" in diameter), slight cementation. Approximately 35% fine sand, 65% silt and 10% clay. Sandy silt, brown (7.5YR4/2), stiff, moist, fine to very fine sand, silt, no cementation, no plasticity. Approximately 35% fine sand, 65% silt and trace clay.						Type II Portland Cement with 3-7% Bentonite
170	C.C.	1/5			1.1		As above. Silt. Approximately 10% fine sand, 90% silt and trace clay.						4" Blank PVC Riser Pipe
	C.C.	1/5			3.3		Clayey sandy silt, brown (7.5YR4/2), hard, moist, fine to very fine sand, silt with clay, moderate cementation, low to no plasticity. Approximately 30% fine sand, 55% silt and 15% clay. Silt with clay, brown (7.5YR4/2), very stiff, moist, trace to some fine to very fine sand present, silt with clay, very weak cementation, no plasticity. Approximately 10% fine sand, 80% silt and 10% clay.						
180													

Project No. 3850360

Log of Boring: BRC-SB-04-A



Page 6 of 14

BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-04-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction	
								E-Log			Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)	S. PT. (OHM)			

-190	C.C.	1/5			5.0		As above. Approximately 90% silt and 10% clay. Approximately 10% fine sand, 80% silt and 10% clay.					
	C.C.	1/5			0.1		As above, color change to greenish gray (GLE Y2 6/10BG). Sandy silt with clay, brown (7.5YR4/2), very stiff, moist, fine to very fine sand, silt with clay, very weak cementation, no plasticity. Approximately 30% fine sand, 60% silt and 10% clay.					
	C.C.	1/5			0.1		Silt with clay, light blueish gray (GLE Y2 8/10B), stiff, moist, very fine sand, silt with clay, very weak cementation, no plasticity. Approximately 10% fine sand, 80% silt and 10% clay.					
	C.C.	1/5			0.1		As above, color change to greenish gray (GLE Y2 6/10BG). As above, color change to dark brown (7.5YR3/2).					
	C.C.	1/5			0.1		As above, color change to greenish gray (GLE Y2 6/10BG).					Type II Portland Cement with 3-7% Bentonite
-210	C.C.	1/5			0.1		As above.					4" Blank PVC Riser Pipe
	C.C.	1/5			0.1		Sandy silt, greenish gray (GLE Y 2 6/10BG), medium stiff, very moist, 210' bgs starts a 4 foot coarsening sequence, medium sand subrounded, fine to very fine sand, silt, no cementation, no plasticity. Approximately 30% fine sand, 70% silt and trace clay. Approximately 5% medium sand, 35% fine sand, 60% silt and trace clay. Approximately 20% coarse sand, 20% medium sand, 30% fine sand					

Project No. 3850360

Log of Boring: BRC-SB-04-A



Page 7 of 14

BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-04-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction	
								E-Log			Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)	S. PT. (OHM)			

							and 30% silt.					
	C.C.	1/5			0.1		SM: Silty sand, dark brown (7.5YR3/2) medium density, moist to wet, trace coarse sand subangular, some medium sand, primarily fine to very fine sand, silt with trace clay, no cementation or plasticity. Approximately 5% coarse sand, 10% medium sand, 45% fine sand and 40% silt.					
	C.C.	1/5			0.1		ML: Silt with sand, dark brown (7.5YR3/2), very stiff, moist, sand is primarily very fine, silt with trace clay, weak cementation, little to no plasticity. Approximately 15% fine sand, 80% silt and 5% clay.					
-220	C.C.	1/5			0.1		As above, trace 1/2" gypsum crystals.					
	C.C.	1/5			0.1		Silt with sand and clay, dark brown, (7.5YR3/2), hard, moist, very fine to fine sand, silt with clay, moderate cementation, no plasticity. Approximately 15% fine sand, 75% silt and 10% clay.					
-230	C.C.	1/5			0.1		As above.					
	C.C.	1/5			0.1		As above, 6" section with gypsum crystals (1/2"). Approximately 5% coarse sand, 15% fine sand, 70% silt and 10% clay. Approximately 10% fine sand, 80% silt and 10% clay.					
-240	C.C.	1/5			0.1		Clayey silt, dark brown (7.5YR3/2), very stiff, moist, very fine sand, silt with clay, weak to moderate cementation, no plasticity. Approximately 10% fine sand, 75% silt and 15% clay.					
												Type II Portland Cement with 3-7% Bentonite
												4" Blank PVC Riser Pipe

Project No. 3850360

Log of Boring: BRC-SB-04-A



Page 8 of 14

BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-04-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction	
								E-Log			Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)	S. PT. (OHM)			

							As above, color change greenish gray (GLEY2 5/5BG).					
	C.C.	1/5			0.1		As above, Silt with clay. Approximately 10% fine sand, 80% silt and 10% clay.					
-250	C.C.	1/5			0.1		As above, Silt with sand and clay. Approximately 15% fine sand, 75% silt and 10% clay. 1" gypsum crystals.					Type II Portland Cement with 3-7% Bentonite
							No gypsum crystals.					
	C.C.	1/5			0.1		As above, Silt with sand and clay.					4" Blank PVC Riser Pipe
							As above, color change to greenish gray (GLEY2 5/10G). Approximately 10% fine sand, 80% silt and 10% clay.					
-260	C.C.	1/5			0.1		Silt with sand, greenish gray (GLEY 2 5/10G), stiff, moist, fine to very fine sand, no gypsum, silt with clay, no cementation, no plasticity. Approximately 25% fine sand, 70% silt and 5% clay.					
							As above, nine inches of 1/4" gypsum crystals, subangular. Approximately 5% gravel, 5% coarse sand, 5% medium sand, 10% fine sand, 65% silt and 10% clay.					
	C.C.	1/5			0.1		Silt with sand and clay, greenish gray (GLEY 2 6/10BG), very stiff, moist, fine to very fine sand, silt with clay, no cementation, no plasticity, five inches of 1/2" gypsum crystals. Approximately 20% fine sand, 70% silt and 10% clay.					
							Approximately 5% fine sand, 75% silt and 20% clay.					
							As above, Clayey silt.					Type II Portland Cement with 3-7% Bentonite
-270	C.C.	1/5			0.1		As above. Approximately 10% fine sand, 70% silt and 20% clay.					4" Blank PVC Riser Pipe

Project No. 3850360

Log of Boring: BRC-SB-04-A



Page 9 of 14

BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-04-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data					Well Construction	
								E-Log			Caliper Log (inch)	Guard Log (OHM.M)		
								16" (OHM)	64" (OHM)	S. PT. (OHM)				
280	C.C.	1/5			0.1		Clayey silt with sand, blueish gray (GLEY 2 5/10B), hard, slightly moist, coarse/medium fraction is gypsum sand fine to very fine sand, silt with clay weak cementation, no plasticity. Approximately 5% coarse sand, 5% medium sand, 10% fine sand, 65% silt and 15% clay.							
	C.C.	1/5			0.1		As above, Sandy silt with clay. Approximately 5% coarse sand, 5% medium sand, 20% fine sand, 60% silt and 10% clay.							
	C.C.	1/5			0.1		As above.							
290	C.C.	1/5			0.1		As above, Sandy silt, hard, moderate to strong cementation. Approximately 20% fine sand, 75% silt and 5% clay.							
	C.C.	1/5			0.1		As above, Silt with sand, hard to very stiff, silt with trace clay. Approximately 15% fine sand, 80% silt and 5% clay. Eight inches of 1/2" gypsum crystals, very stiff, moist, no plasticity, weak cementation, subangular crystals. Approximately 5% gravel, 15% fine sand, 75% silt and 5% clay. Approximately 15% fine sand, 75% silt and 10% clay.							
	C.C.	1/5			0.1		Silt with sand and clay, dark brown (7.5YR3/2), very stiff, moist, very fine sand, silt with clay, weak cementation, no plasticity. Approximately 20% fine sand, 70% silt and 10% clay.							Type II Portland Cement with 3-7% Bentonite
300		1/5			0.1		As above.							4" Blank PVC Riser Pipe

Project No. 3850360

Log of Boring: BRC-SB-04-A



Page 10 of 14

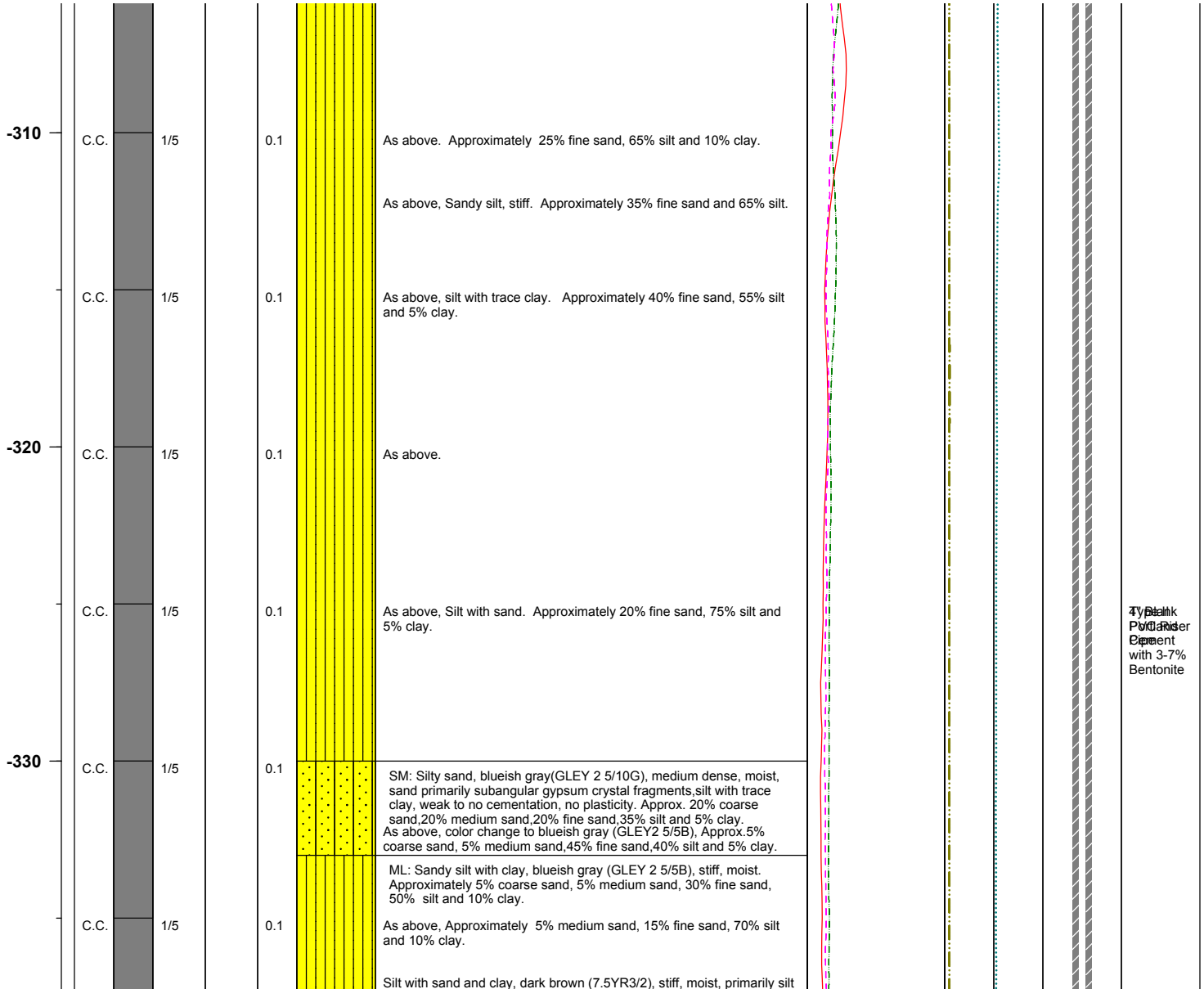
BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-04-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction	
								E-Log			Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)	S. P.T. (OHM)			



4" Blank
PVC Casing
Cement
with 3-7%
Bentonite

Project No. 3850360

Log of Boring: BRC-SB-04-A



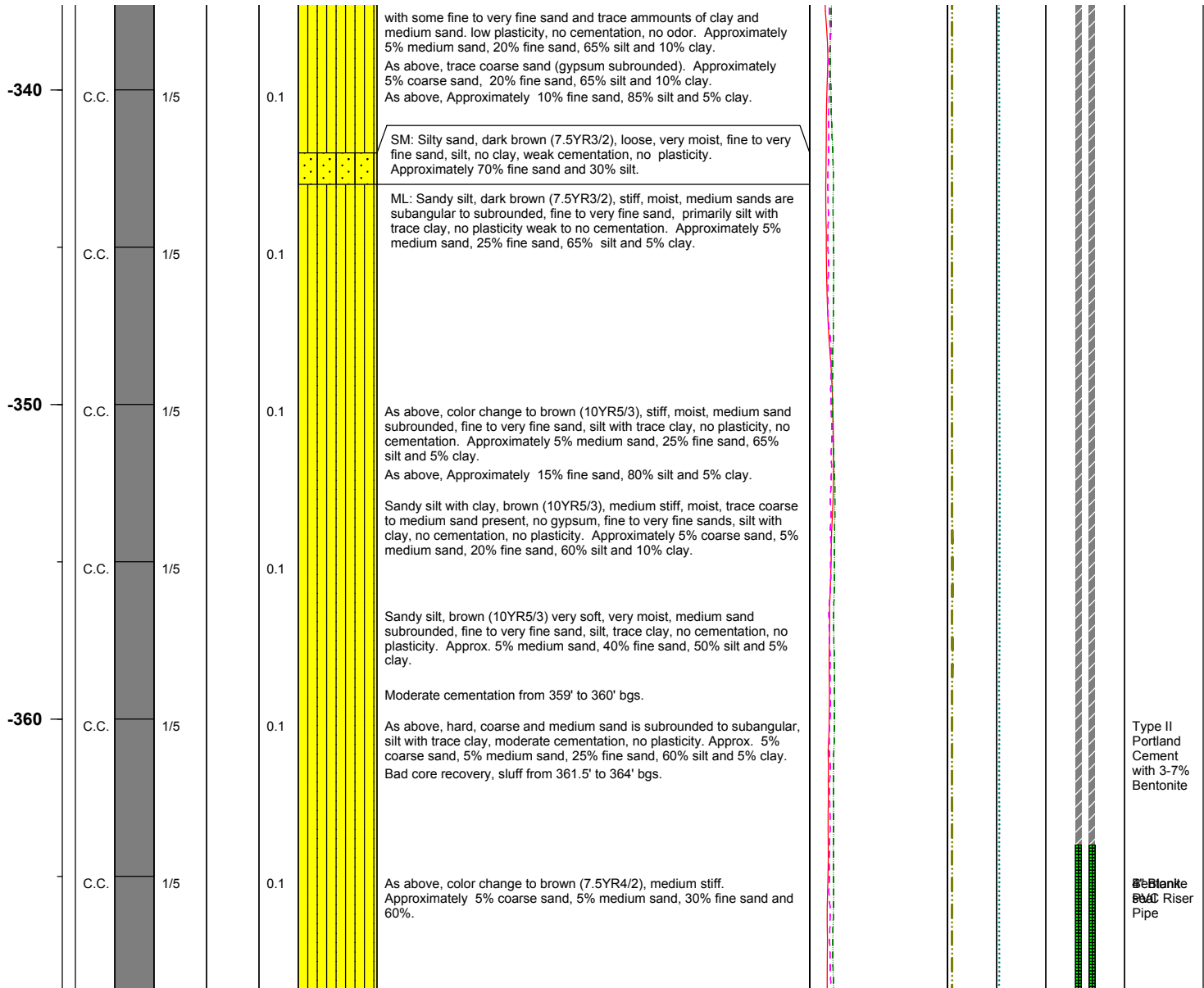
BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-04-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction	
								E-Log			Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)	S. PT. (OHM)			
								<div><div></div></div>	<div><div></div></div>	<div><div></div></div>			



Project No. 3850360

Log of Boring: BRC-SB-04-A



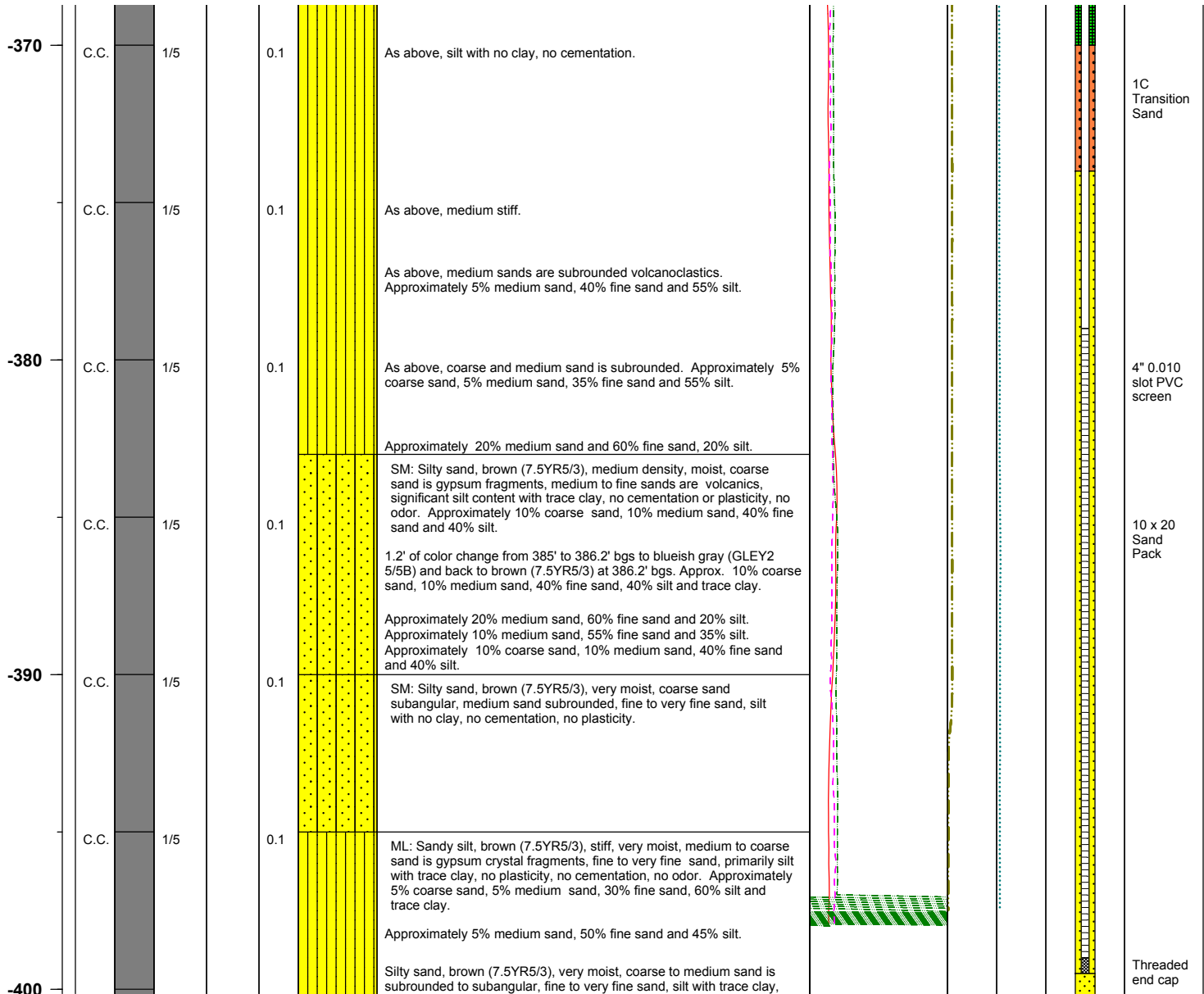
BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-04-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction	
								E-Log			Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)	S. PT. (OHM)			
								<div><div></div></div>	<div><div></div></div>	<div><div></div></div>			



Project No. 3850360

Log of Boring: BRC-SB-04-A



Page 13 of 14

BMI Site - Hydrogeologic Characterization

Henderson, Nevada



Log of Boring No. BRC-SB-04-A

Depth Elevation (BGS)	Sample Type	Sample Interval	Sample Recovery	Sample Retained for Analysis	PID	Lithology	Soil Description	Geophysical Data				Well Construction	
								E-Log			Caliper Log (inch)		Guard Log (OHM.M)
								16" (OHM)	64" (OHM)	S. PT. (OHM)			

-410	C.C.	1/5		0.1		weak to moderate cementation, no plasticity, slightly wet from 400.8'-401.1' bgs, slightly moist down to 405' bgs. Approximately 5% medium sand, 50% fine sand, 45% silt and trace clay. Approximately 5% coarse sand, 5% medium sand, 30% fine sand and 60% silt. Approximately 5% coarse sand, 15% medium sand, 35% fine sand, 45% silt and trace clay. Approximately 5% gravel, 10% medium sand, 35% fine sand, 50% silt and trace clay.							
	C.C.	1/5		0.1		SM/ML: Silty sand, brown (7.5YR5/3), stiff, moist, medium sand is subangular gypsum, very fine sand, silt with trace clay, no cementation, no plasticity, gypsum crystals (1/2" in size) from 406' to 406.5' bgs. Approximately 10% medium sand, 40% fine sand, 50% silt and trace clay. Silty sand, brown (7.5YR5/3), stiff, moist, medium sand is subangular gypsum, very fine sand, silt with trace clay, no cementation, no plasticity, gypsum crystals (1/2" in size) from 406' to 406.5' bgs. Approximately 10% medium sand, 40% fine sand, 50% silt and trace clay. Approximately 10% medium sand, 60% fine sand and 30% silt.							
	C.C.	1/5		0.1		ML: Sandy silt, brown (7.5YR5/3), stiff, moist, coarse and medium sand is subangular gypsum, very fine sand, silt with trace clay, no cementation, no plasticity. Approximately 5% coarse sand, 5% medium sand, 20% fine sand, 70% silt and trace clay.							
	C.C.	1/5		0.1		SM/ML: Silty sand, brown (7.5YR5/3), very stiff, moist, medium sand subangular gypsum, very fine sand, silt with trace clay, weak cementation, no plasticity. Approximately 15% medium sand, 45% fine sand, 40% silt and trace clay. Approximately 5% coarse sand, 5% medium sand, 60% fine sand and 30% silt.							
-420	C.C.	1/5		0.1		Silty with sand, brown (7.5YR5/3), stiff, moist, very fine sand and silt, gypsum crystal fragments, trace clay, no cementation, no plasticity. Total Depth = 420' bgs. Approximately 20% fine sand, 75% silt and 5% clay.							

Project No. 3850360

Log of Boring: BRC-SB-04-A



Page 14 of 14